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(150) ， ，
(aprotic solvent) N-N (N-N Dimethyl
formaldehyde)가 ，
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． Kissa Dettre 가

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Testfabric Inc. , (Style 400, 80
× 80,); 66(Style 361, Spun DuPont Type 200)
(Style 767.100% Dacron 54)가 .
60 .

; Dodecyle sodium sulfate(Aldrich Chemical Co).

; Alkyl aryl polyester alcohol(Triton X-100, Rohm &Haas)

; Alkyl benzyl dimethyl ammonium chloride(Zepharin Chloride,
Winthrop Laboratories)

N-N

Aldrich

45cm × 45cm 5% , ,
 N-N ,
 100% , 75%
 .
 100 (flat bed press, U. S.
 Testing Co. Model 6584) 2 150 . 60
 . 60
 100 .
 150
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< 1>

First Symbol (Fabric)	Second Symbol (Treatment)
C—Cotton	None—Untreated Control
N—Nylon	H—Heat-Treated Control
P—Polyester	A—Anionic Detergent/ Heat-Treated
	N—Nonionic Detergent/ Heat-Treated
	C—Cationic Detergent/ Heat-Treated
	D— <i>N,N</i> -Dimethylformamide/ Heat-Treated

ASTM D 1388-55T

(Monsanto wrinkle recovery) ASTM D1295-53

. (3)

< 2>

Sample	Weight Change (%)	Area Shrinkage (%)
C	—	7.2
C-H	1.7	8.3
C-A	0.9	8.5
C-N	1.0	8.3
C-C	0.8	8.2
C-D	1.8	7.2
N	—	3.2
N-H	0.4	3.6
N-A	0.0	5.4
N-N	0.0	5.3
N-C	0.7	5.4
N-D	0.4	4.0
P	—	0.4
P-H	0.2	2.5
P-A	0.0	3.3
P-N	0.4	2.3
P-C	0.1	2.0
P-D	0.0	2.8

< 3>

Sample	Fabric Stiffness (Warp), Flexural Rigidity, G (mg-cm)	Monsanto Wrinkle Recovery (Warp)	
		Dry	Wet
C	151		74
C-H	170		74
C-A	156		71
C-N	128		76
C-C	154		69
C-D	147		71
N	115		114
N-H	116		103
N-A	111		99
N-N	117		96
N-C	120		100
N-D	144		103
P	130	135	
P-H	82	144	
P-A	73	144	
P-N	81	145	
P-C	99	146	
P-D	77	148	

ASTM D2256-69(4)

Weirick (Wicking) AATCC79-1975(5) (Drop

absorbency) . F MIR(frustrated multiple

interference) 가 Model 281 Perkin Elmer

(DTA) Delta therm 10

/min 가 100 400 .

(SEM)

5KV 2 Cambridge Stereoscan Mark

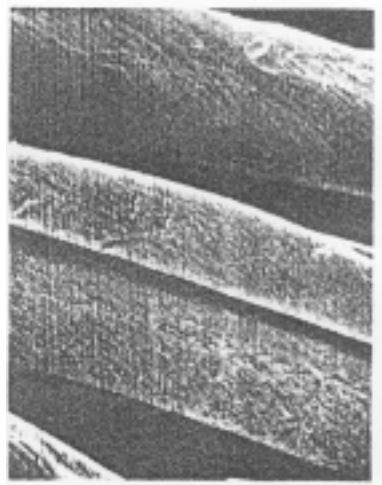
.(1)

< 4>

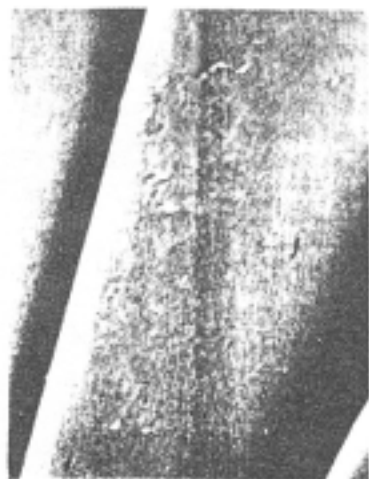
Sample	Breaking Strength (g)	Elongation to Break (%)	Energy to Break (g-cm)
C	248 ± 43	6 ± 1	45 ± 12
C-H	250 ± 49	7 ± 1	48 ± 14
C-A	265 ± 32	6 ± 1	50 ± 15
C-N	251 ± 32	7 ± 1	46 ± 10
C-C	259 ± 46	7 ± 1	50 ± 12
C-D	264 ± 36	8 ± 1	53 ± 10
N	865 ± 100	44 ± 4	1536 ± 383
N-H	830 ± 76	41 ± 4	1341 ± 203
N-A	898 ± 90	41 ± 6	1470 ± 420
N-N	910 ± 107	44 ± 5	1638 ± 359
N-C	936 ± 128	45 ± 4	1739 ± 390
N-D	849 ± 109	44 ± 4	1522 ± 368
P	772 ± 49	36 ± 3	1068 ± 146
P-H	774 ± 90	36 ± 3	1054 ± 168
P-A	767 ± 109	36 ± 3	1065 ± 222
P-N	715 ± 98	33 ± 3	915 ± 226
P-C	754 ± 116	36 ± 3	988 ± 234
P-D	706 ± 93	34 ± 3	933 ± 202



a.



b. /



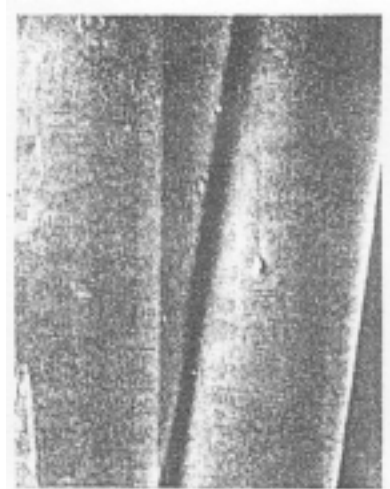
c.



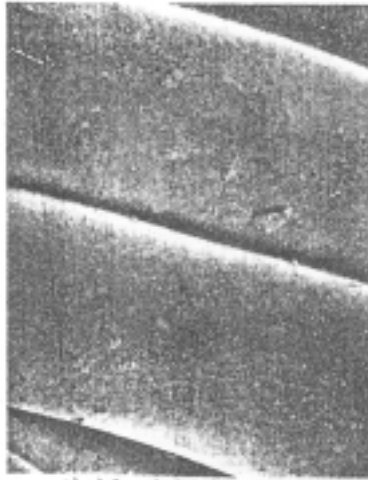
d. /



e. N, N-dimethylformamide/



f.



g. /

< 1 a g> SEM

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10g

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30 : 1 1%

Alkyl benzimidazole sulfonate

(Intratex POK)

1%

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100

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20%

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20

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C.I Direct

Blue 218

Direct Red 89(Crompton and Knowles)가

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0.15%

Blue, 0.3%

Yellow

0.15% dml Red가

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30 : 1 38

1%

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(100)

45

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CI Acid Blue

277, Acid Yellow 219 Acid Red 361(Ciba-Geigy) ,

0.06% Acid Blue, 0.12% Yellow 0.6% Red 가 .

30 : 1 130 30 1%

5% ,

. CI Disperse 56, Disperse Yellow 64 Disperse Red

60(Eastman) 0.07% Blue, 0.2% Yellow

0.15% Red .

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가 2

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8 CIE x,y,Y .

(Δ E) CIE LAB

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100 .

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AATCC 61-1975 A .

(5%) (, ,)
100 150 2 .
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FMIR

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SEM

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1 a, b

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DMF

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	Wicking Test, Distance Traveled (cm)			Drop Absorbency Test, Time (min)
	1 min	5 min	10 min	
C	3.0	5.8	7.6	0:02
C-H	3.3	6.6	8.4	0:02
C-A	3.6	6.4	7.6	0:02
C-N	3.8	6.8	8.9	0:01
C-C	3.6	6.8	8.6	0:01
C-D	3.6	6.6	8.4	0:02
N	0.5	1.3	2.8	> 4:00
N-H	0.0	0.8	2.0	> 4:00
N-A	2.8	6.4	8.9	1:49
N-N	3.3	6.1	10.2	0:53
N-C	3.8	7.4	11.2	0:23
N-D	0.0	0.5	1.3	> 4:00
P	0.0	0.5	1.3	> 4:00
P-H	0.8	2.8	3.6	> 4:00
P-A	1.0	3.0	4.1	> 4:00
P-N	1.8	4.8	5.6	3:55
P-C	2.3	4.8	5.8	> 4:00
P-D	1.3	2.8	3.6	> 4:00

Blue, Yellow, Red (6 8).

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CI Direct Blue 218, Direct Yellow 106 Direct Red 89

3가 . ,

6 .

가 Direct Blue

218

Direct Yellow 106

. Direct Red 89

Direct

Yellow 106

Red (stilbene) Yellow Diazo Blue

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Dye Color	Sample	CIE Color Co-Ordinates			Color Difference ΔE (CIE Lab)	Strength (Parts)
		x	y	Y		
Blue	C	0.210	0.260	11.8	—	100.0
	C-H	0.210	0.259	11.7	0.36	98.8
	C-A	0.209	0.258	11.5	0.48	96.8
	C-N	0.209	0.259	11.4	0.70	95.3
	C-C	0.207	0.256	10.7	1.87	87.0
	C-D	0.209	0.258	11.4	0.66	95.9
Yellow	C	0.489	0.447	48.9	—	100.0
	C-H	0.487	0.448	49.1	0.68	101.7
	C-A	0.486	0.448	48.9	0.82	102.5
	C-N	0.488	0.448	48.9	0.45	100.2
	C-C	0.488	0.449	48.8	0.70	97.4
	C-D	0.489	0.448	49.0	0.11	99.2
Red	C	0.496	0.329	20.1	—	100.0
	C-H	0.496	0.329	20.0	0.35	99.6
	C-A	0.494	0.329	20.3	0.42	102.8
	C-N	0.496	0.330	20.1	0.31	99.9
	C-C	0.503	0.334	20.1	1.52	93.6
	C-D	0.492	0.329	20.2	1.02	103.5
Beige	C	0.374	0.397	20.7	—	100.0
	C-H	0.368	0.392	20.0	1.99	100.0
	C-A	0.369	0.393	20.3	1.81	99.3
	C-N	0.368	0.393	20.0	2.01	99.8
	C-C	0.372	0.397	19.8	1.51	94.4
	C-D	0.370	0.393	20.0	1.81	99.2

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Dye Color	Sample	CIE Color Co-Ordinates			Color Difference ΔE (CIE Lab)	Strength (Parts)
		x	y	Y		
Blue	N	0.192	0.203	12.9	—	100.0
	N-H	0.193	0.203	13.2	0.66	104.3
	N-A	0.197	0.208	14.6	3.25	122.4
	N-N	0.193	0.202	13.3	1.76	103.9
	N-C	0.193	0.202	11.9	3.22	92.3
	N-D	0.193	0.203	13.3	1.07	104.7
Yellow	N	0.489	0.447	48.9	—	100.0
	N-H	0.487	0.448	49.1	0.68	101.7
	N-A	0.486	0.448	48.9	0.82	102.5
	N-N	0.488	0.448	48.9	0.45	100.2
	N-C	0.488	0.448	48.8	0.70	97.4
	N-D	0.489	0.448	49.0	0.11	99.2
Red	N	0.452	0.282	14.5	—	100.0
	N-H	0.450	0.282	14.9	0.49	104.0
	N-A	0.448	0.282	15.9	1.87	117.1
	N-N	0.450	0.282	14.9	0.53	104.6
	N-C	0.446	0.280	13.1	3.64	90.7
	N-D	0.449	0.282	15.0	0.67	105.7
Beige	N	0.393	0.398	25.9	—	100.0
	N-H	0.392	0.399	25.9	0.17	99.8
	N-A	0.390	0.397	28.7	2.79	119.7
	N-N	0.391	0.398	26.2	0.38	102.6
	N-C	0.394	0.398	24.9	1.23	94.5
	N-D	0.391	0.398	26.2	0.35	103.0

CI Acid Blue 277, Acid Yellow 219 Acid Red 361

(7). , DMF

가

CI Acid Blue 277

. Acid Yellow 219

Acid Red 361

, DMF

(Anthraquinone)

Blue

Yellow

Red

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가

(ΔE)

가

(8).

CI Disperse Blue 56

Disperse Yellow 64

가 ,

Dispers Red 60

(quinoline)

yellow

Blue

Red

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Dye Color	Sample	CIE Color Co-Ordinates			Color Difference ΔE (CIE Lab)	Strength (Parts)
		x	y	Y		
Blue	P	0.183	0.179	7.9	—	100.0
	P-H	0.184	0.181	8.3	1.01	106.6
	P-A	0.186	0.185	8.8	2.27	117.0
	P-N	0.187	0.186	9.0	2.49	120.2
	P-C	0.187	0.189	9.5	3.74	127.1
	P-D	0.184	0.182	8.3	1.06	106.5
Yellow	P	0.440	0.480	58.4	—	100.0
	P-H	0.442	0.481	60.3	2.06	98.8
	P-A	0.440	0.480	59.6	0.94	103.4
	P-N	0.440	0.481	59.2	0.99	99.3
	P-C	0.441	0.482	59.4	1.30	96.9
	P-D	0.440	0.481	58.0	0.49	99.2
Red	P	0.450	0.276	18.5	—	100.0
	P-H	0.446	0.276	19.9	1.70	112.9
	P-A	0.448	0.277	19.6	1.23	111.1
	P-N	0.445	0.277	20.1	1.81	116.2
	P-C	0.446	0.277	19.4	1.17	110.9
	P-D	0.444	0.276	19.7	1.63	113.9
Beige	P	0.355	0.370	21.0	—	100.0
	P-H	0.352	0.366	23.1	2.31	119.3
	P-A	0.355	0.370	21.6	0.72	104.6
	P-N	0.350	0.365	23.6	2.85	124.7
	P-C	0.353	0.367	22.7	1.87	115.2
	P-D	0.349	0.363	24.6	3.93	135.1

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Sample	Colorfastness (Light/Washing)			
	Blue	Yellow	Red	Beige
C	4/3	7/4	5/4	5/3
C-H	4/3	7/4	5/4	5/3
C-A	4/3	7/4	5/4	5/3
C-N	4/3	7/4	5/4	5/3
C-C	4/3	7/4	5/4	5/3
C-D	4/3	7/4	5/4	5/3
N	6/4	7/4	8/4	8/4
N-H	6/4	7/4	8/4	8/4
N-A	6/4	7/4	8/4	8/4
N-N	6/4	7/4	8/4	8/4
N-C	5/3	7/4	8/4	7/4
N-D	6/4	7/4	8/4	8/4
P	9/5	8/5	9/5	8/4
P-H	9/5	8/5	9/5	8/4
P-A	9/5	8/5	9/5	8/4
P-N	9/5	8/5	9/5	8/4
P-C	9/5	8/5	9/5	8/4
P-D	9/5	8/5	9/5	8/4

(Xenon Arc 40) 가

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CI Acid Blue 277

Blue dye .

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DMF

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